



**2014-15**

# **Missouri Deer Season Summary & Population Status Report**



**Missouri Department of Conservation**

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# Missouri Deer Season Summary & Population Status Report

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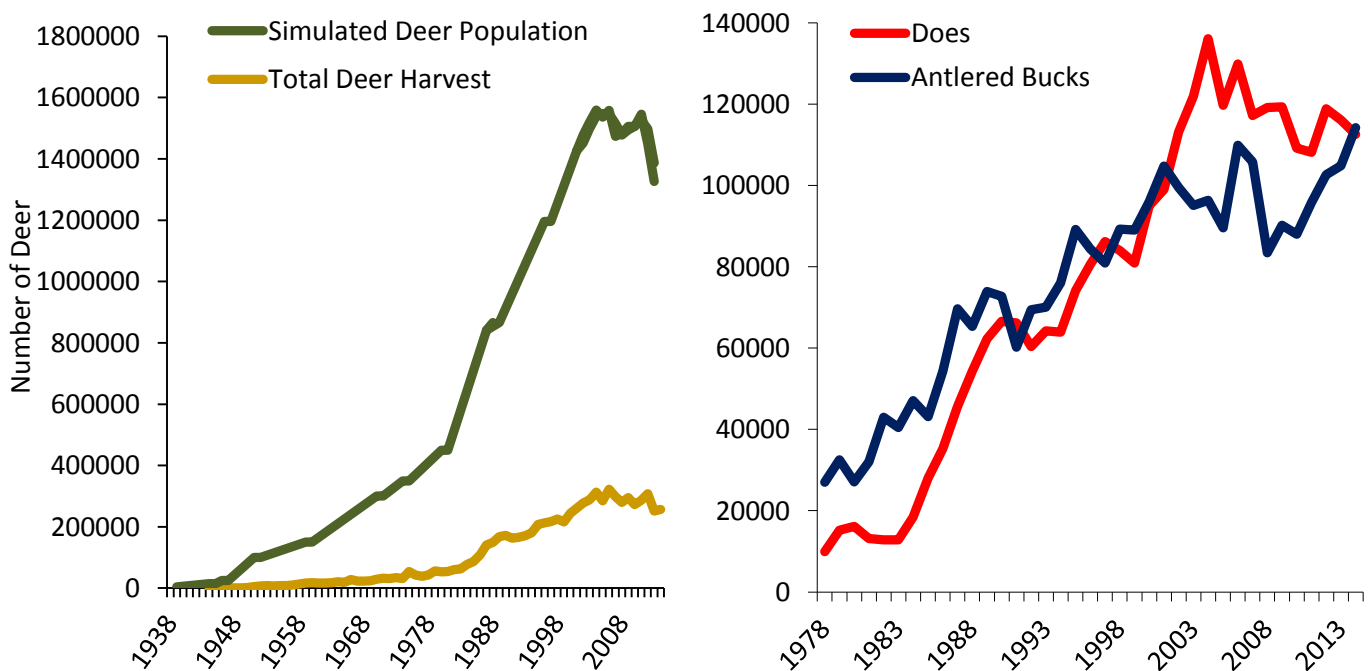
## 2014 – 2015 Overview

The 2014-2015 deer harvest of 256,753, was a 2% increase from 2013-14 and the second lowest statewide harvest since 2000. The statewide harvest total is a result of significant declines in central, northern, and western counties and increased harvest across portions of southeast and southwest Missouri compared to past ten years.

Deer numbers have decreased over the past five years in many counties across central, northern, and western Missouri as a result of liberalized antlerless harvest opportunities coupled with significant hemorrhagic disease outbreaks in 2007, 2012, and 2013. Deer populations in many of these areas have fallen below acceptable levels as reflected by a decline in the portion of production landowners who state there are too many deer and an increasing portion of hunters who state there are too few deer. In 2014 the number of firearms antlerless permits was reduced in many counties to better meet deer population management goals and ensure that deer numbers are maintained at levels acceptable to the general public, production landowners, and hunters. The reduction in the availability of firearms antlerless permits resulted in 11% fewer firearms antlerless permits being issued in 2014-15. Additionally, for the first time since 2001, more antlered bucks were harvested than does. As a result of antlerless permit changes and hunters voluntarily reducing doe harvest, deer numbers in these areas should stabilize and in some areas increase over the next few years.

Contrastingly, deer numbers have been steady to slightly increasing in many southern Missouri areas as a result of several years of conservative antlerless harvest regulations. However, deer populations in many areas of southern Missouri are still below desired levels, therefore deer population increases are generally welcomed. As deer populations grow and approach desired levels, regulations changes will be considered. This has already occurred in Barton & Cape Girardeau counties in 2014 when regulations were liberalized to address growing deer populations.

The goal of MDC's Deer Program is to achieve and maintain deer populations at desired levels throughout Missouri. We define "desired levels" as the point at which deer populations are both biologically sustainable and socially acceptable to hunters, production landowners, and other interested stakeholders. The Deer Program annually develops regulation recommendations based upon harvest data, hunter and production landowner surveys, MDC staff surveys, public comments, and population simulations.



**Figure 1. Statewide estimated deer population and total deer harvest from 1938 to 2014 (left). Number of antlered bucks and does in the statewide deer harvest from 1978 to 2014 (right).**

## Deer Season General Information: 2014-2015

### Season Dates:

**Archery Season:** September 15 – January 15, closed during the November portion of the firearms deer season

### Firearms Season:

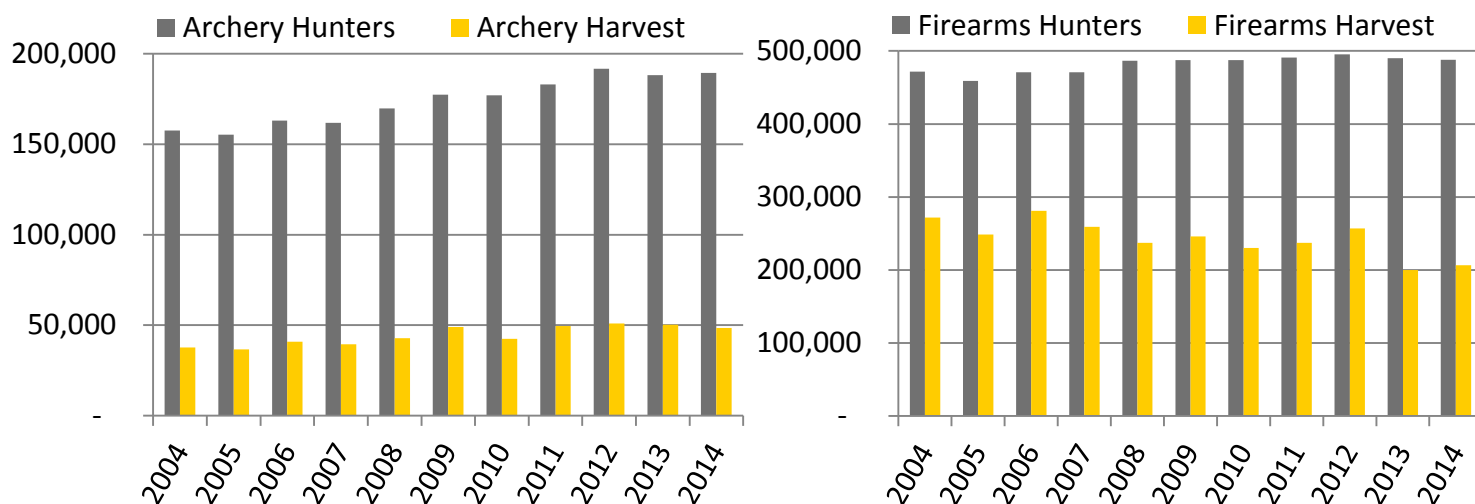
Urban Portion: October 10 – 13

Youth Portion: November 1 – 2; January 3 – 4

November Portion: November 15 - 25

Antlerless Portion: November 26 – December 7

Alternative Methods Portion: December 20 – 30



**Figure 2. Trends in the number of individuals holding an archery and firearms deer hunting permit and harvest.**

### Archery Season Summary

The 2014 archery season yielded a harvest of 48,449 deer, which was a 3% decrease from the 2013. Compared to 2013, the 2014 harvest was up 1% for antlered bucks and down 5% for button bucks and down 6% for does (Table 1). Overall archery permit issued increased by 1% from 2013 (Table 2). A total of 189,452 individuals possessed an archery permit in 2014 (Table 3), which is a 20% increase from 2004. Each year archery harvest composes a larger portion of the total deer harvest. For example, in 2000, archery deer harvest made up 10% of the total deer harvest, and in 2014 it composed 19%.

### Firearms Season Summary

Resident firearms hunters possessed 865,230 permits, down 3% from 2013 and 5% from 2012. This annual decrease mainly resulted from an 11% drop in firearms antlerless permits issued. In response to declining deer populations, permit allocation was reduced in many counties in 2014 in an effort to allow deer populations to increase to desired levels. Therefore, the decrease in firearms antlerless permits is a positive step in allowing deer populations to increase to desired levels.

Deer harvest during the 2014-15 firearms season totaled 206,640, a 3% increase from 2013-14 and a 16% decrease from the 10-year average (Table 1). When compared to 2013 the total harvest of does and button bucks decreased slightly by 2% and 3%, respectively. However, the antlered buck harvest increased by 11%. The firearms harvest is composed of 94% resident hunter harvest and 6% non-resident hunter harvest, which has remained fairly consistent for several years (Table 2). When reviewing deer harvest trends it is critical to evaluate on a regional or county level, because statewide harvest numbers do not convey local population; therefore, refer to pages 9-13 for regional population trend information.

Harvest during the 2014 urban zones portion decreased by 1% from 2013, with 599 deer harvested. Since the urban zones portion is a relatively short firearms portion (i.e., four days), annual harvest totals are highly influenced by weather conditions. Harvest totaled 570 in 2011, 1,100 in 2012, and 605 in 2013.

In 2014, the early youth harvest was down 3% from 2013 with 18,294 deer harvested, and the late youth harvest of 1,123 was down 6%. The total harvest for both youth portions (early and late combined) consisted of 11,860 antlered bucks, 1,914 button bucks, and 5,643 does, totaling 19,417 deer (Table 1). The majority of the youth firearms harvest occurs during the early portion due to the increased deer activity associated with the rut and often better weather conditions.

The 2014 antlerless portion harvest totaled 9,120 deer, a 14% decrease from 2013 and a 41% decrease from the 10-year average. The decrease in harvest is attributed to decreasing deer populations in central, northern, and western Missouri (refer to pages 9-13 for information on regional trends), which triggered a decrease in firearms antlerless permits in many counties for the 2014-15 deer season.

Lastly, the 2014 harvest during the alternative methods portion totaled 11,067 deer, which was a 7% decrease from 2013 and a 22% decrease from the 10-year average. The antlered buck harvest during this portion increased by 8%, for a total of 2,851. However, button buck harvest decreased 15% to 1,503, and doe harvest decreased 11% to 6,713. The variation in harvest composition is a reflection of reduced emphasis on antlerless harvest allowing population growth.

### Managed Deer Hunt Summary

Overall, hunters harvested 1,664 deer during managed deer hunts in 2014. Managed deer harvest totals are an annual reflection of number of hunts and quotas, as managers and cooperators use managed hunts as a tool to regulate deer populations.

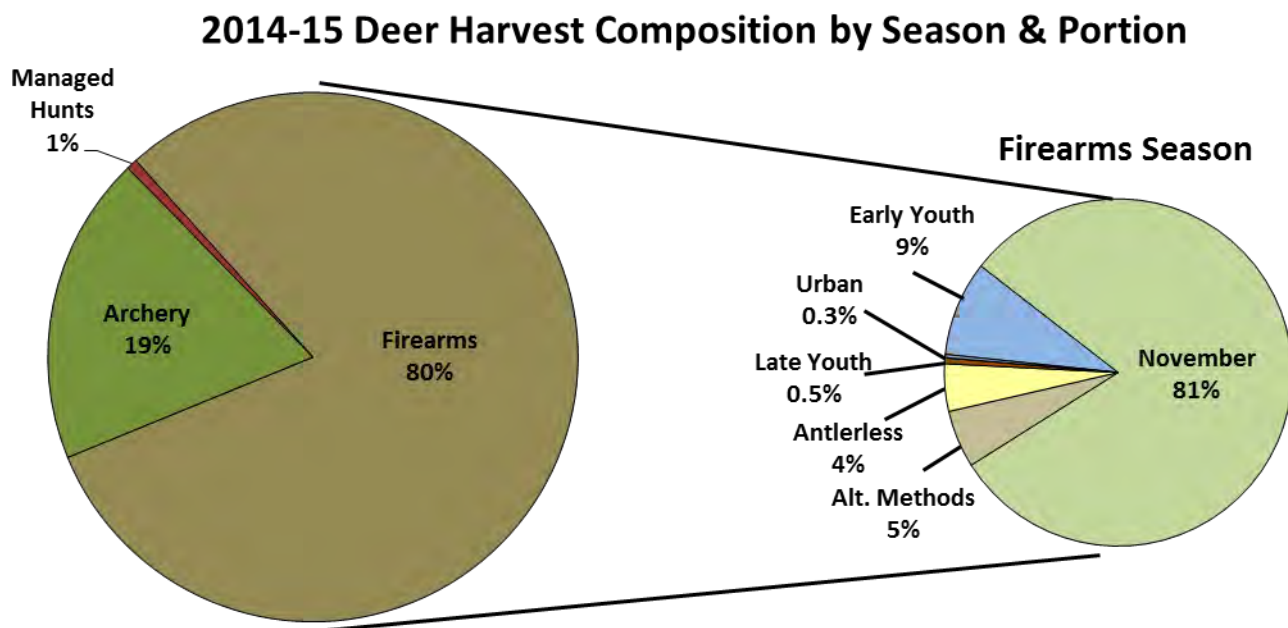


Figure 3. 2014-15 composition of total deer harvest by seasons and portions of the firearms season.



**Table 1. Deer Season Harvest Comparison: 2013 & 2014**

Hunting Portion	Antlered Deer			Button Bucks			Does			Total		
	2013	2014	% Diff.	2013	2014	% Diff.	2013	2014	% Diff.	2013	2014	% Diff.
Archery	20,267	20,395	1	5,426	5,156	- 5	24,483	22,898	- 6	50,176	48,449	- 3
Urban	1	3	200	105	99	- 6	499	497	0	605	599	- 1
Early Youth	12,079	11,621	- 4	1,857	1,735	- 7	4,923	4,938	0	18,859	18,294	- 3
November	68,926	78,556	14	19,496	19,300	- 1	68,320	68,527	0	156,742	166,383	6
Antlerless	133	124	-7	1,888	1,642	- 13	8,545	7,354	- 14	10,566	9,120	- 14
Alt. Methods	2,632	2,851	8	1,760	1,503	- 15	7,553	6,713	- 11	11,945	11,067	- 7
Managed Hunts	457	427	- 7	275	275	0	1057	962	- 9	1,789	1,664	- 7
Late Youth	285	239	- 16	191	179	- 6	718	705	- 2	1,194	1,123	- 6
CWD Seals*	35	34	- 3	3	6	100	10	14	40	48	54	13
Total Firearms	84,091	93,428	11	25,300	24,464	- 3	90,568	88,748	- 2	199,959	206,640	3
Total	104,815	114,250	9	31,001	29,895	- 4	116,108	112,608	- 3	251,924	256,753	2

**Table 2. Permit Issued and Harvest by Permit Type**

Permit Type	Number of Permits			Number of Deer Harvested		
	2013	2014	% Diff.	2013	2014	% Diff.
Archery**	108,366	109,316	1	22,578	22,651	0
Landowner Archery	85,367	86,096	1	6,911	6,523	-6
Youth Archery	6,791	6,695	- 1	944	868	-8
Archery Antlerless**	50,079	49,292	- 2	13,798	13,005	-6
Landowner Archery Antlerless	139,556	143,347	3	5,378	5,142	-4
Youth Archery Antlerless	2,001	2,044	2	357	353	-1
Firearms Any-Deer**	294,550	294,090	0	61,268	69,327	13
Landowner Firearms Any-Deer	180,880	180,525	0	32,874	36,083	10
Youth Firearms Any-Deer	57,578	56,205	- 2	18,767	18,893	1
Firearms Antlerless**	208,802	185,860	- 11	57,954	52,601	-9
Landowner Firearms Antlerless	154,878	154,683	0	22,922	24,267	6
Youth Firearms Antlerless	24,249	22,092	- 9	6,160	5,965	-3
Resident Firearms	891,779	865,230	- 3	189,529	195,934	3
Nonresident Firearms	29,158	28,225	- 3	10,416	11,202	8
Resident Archery	381,549	385,969	1	46,614	44,829	-4
Nonresident Archery	10,611	10,821	2	3,352	3,713	11
Archery & Firearms	752,416	725,594	- 4	181,826	183,663	1
Landowner Archery & Firearms	560,681	564,651	1	68,085	72,015	6

\* CWD Management Seals are part of the MDC's management plan to limit the spread of CWD. CWD Seals were distributed to landowners who own 5 acres or more in the CWD Core Area (30 square mile area in Linn and Macon counties), which permit the harvest of one deer of either sex on the specific property for which it was issued.

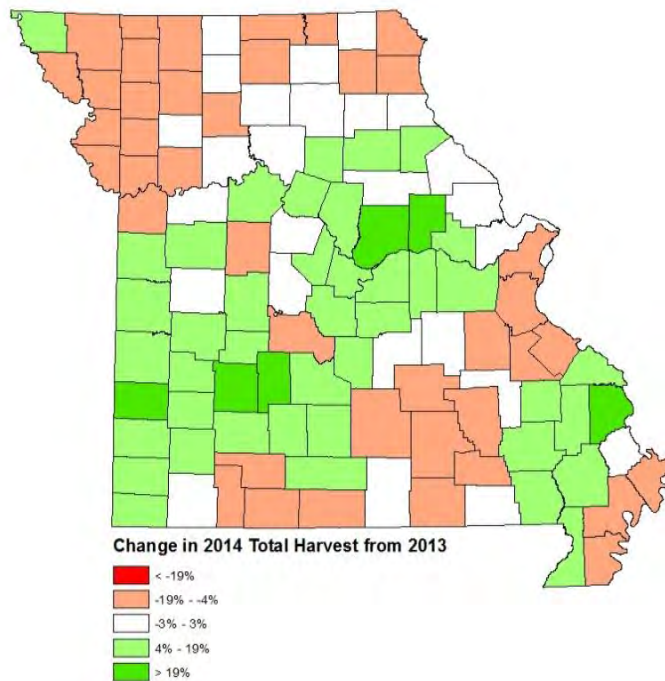
\*\* This permit type does not include youth or landowner permits. Therefore, this is the permit commonly purchased by adults hunting on property other than their own.

**Table 3. Deer Hunter and Harvest Facts**

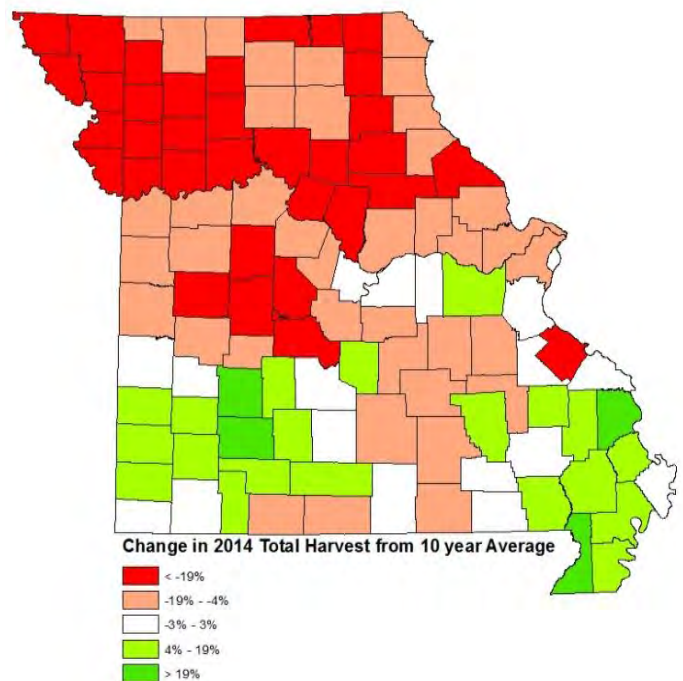
	Archery	Firearms	Archery & Firearms Combined
Resident permits <sup>1</sup>	108,112	332,743	349,385 <sup>3</sup>
Non-resident permits <sup>1</sup>	8,977	19,179	25,777 <sup>3</sup>
Landowner permits <sup>1</sup>	86,367	181,538	183,593 <sup>3</sup>
Total individuals with a permit <sup>2</sup>	189,452	487,923	511,182 <sup>3</sup>
Age distribution of hunters:			
10 or younger	1,688	23,064	-
11-15	10,807	48,567	-
16-40	82,744	180,157	-
41 or older	94,213	236,135	-
Antlerless permit sales:			
1	29,443	172,662	202,105
2	6,745	15,036	21,781
3	1,355	1,246	2,601
4 or more	882	390	1,272
Number of deer taken:			
0	152,255	314,437	317,163 <sup>4</sup>
1	28,987	143,454	147,715 <sup>4</sup>
2	6,198	26,888	35,746 <sup>4</sup>
3	1,349	2,821	7,602 <sup>4</sup>
4 or more	663	323	2,956 <sup>4</sup>
Number of antlered deer taken:			
0	169,609	395,149	403,742 <sup>4</sup>
1	19,207	91,937	101,085 <sup>4</sup>
2	623	792	6,017 <sup>4</sup>
3	13	38	317 <sup>4</sup>
Percentage taking:			
1 or more deer	19.6%	35.6%	38% <sup>4</sup>
1 deer	15.3%	29.4%	28.9% <sup>4</sup>
2 deer	3.3%	5.5%	7.0% <sup>4</sup>
3 or more deer	1.1%	0.6%	2.1% <sup>4</sup>
Percentage taking:			
1 antlered buck	10.1%	18.8%	19.8% <sup>4</sup>
2 antlered bucks	0.3%	0.2%	1.2% <sup>4</sup>
3 or more antlered bucks	0.007%	0.009%	0.066% <sup>4</sup>
Percentage of deer taken by nonresidents	7.60%	5.40%	5.80% <sup>4</sup>
Percentage of deer taken by landowners	24%	29.10%	28.10% <sup>4</sup>

<sup>1</sup> Number of any-deer permits issued<sup>2</sup> Number of individuals possessing a permit, not number of permits issued<sup>3</sup> Number of individuals that held an archery and/or firearms permit<sup>4</sup> Number of individuals that harvested the specified number when combining their archery and firearms harvest

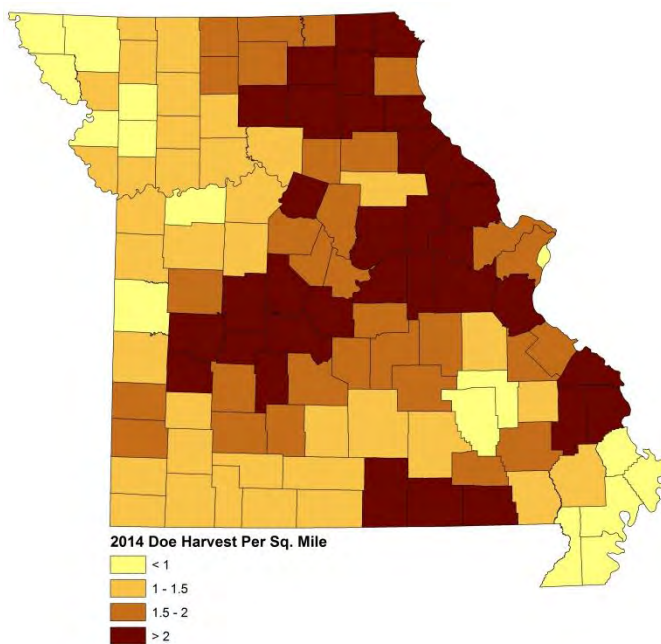
## County Harvest Statistics



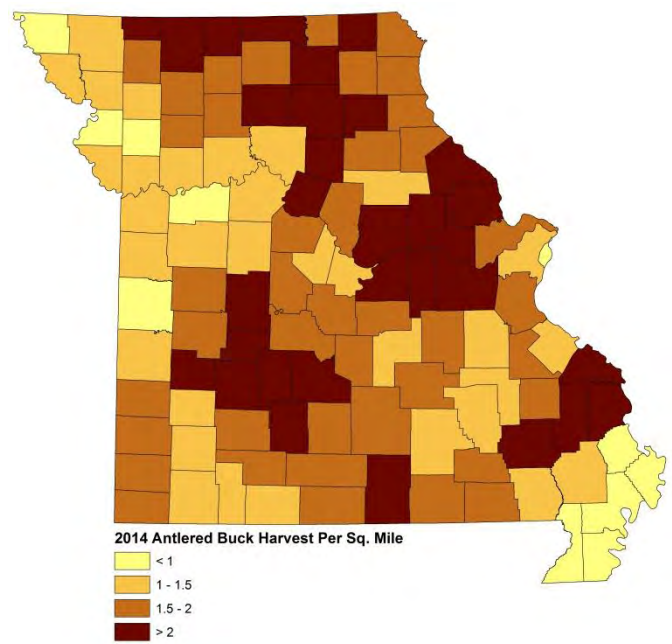
**Figure 4.** Percent change in county total deer harvest from in 2014 from 2013.



**Figure 5.** Percent change in county total deer harvest in 2014 compared to the 10-year average with apparent long-term harvest decreases in central, northern, and western Missouri.



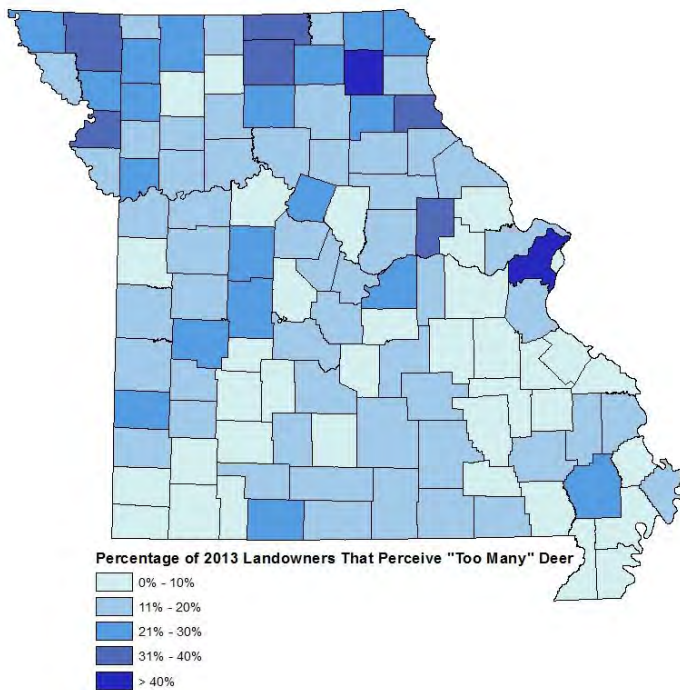
**Figure 6.** 2014 doe harvest per square mile by county.



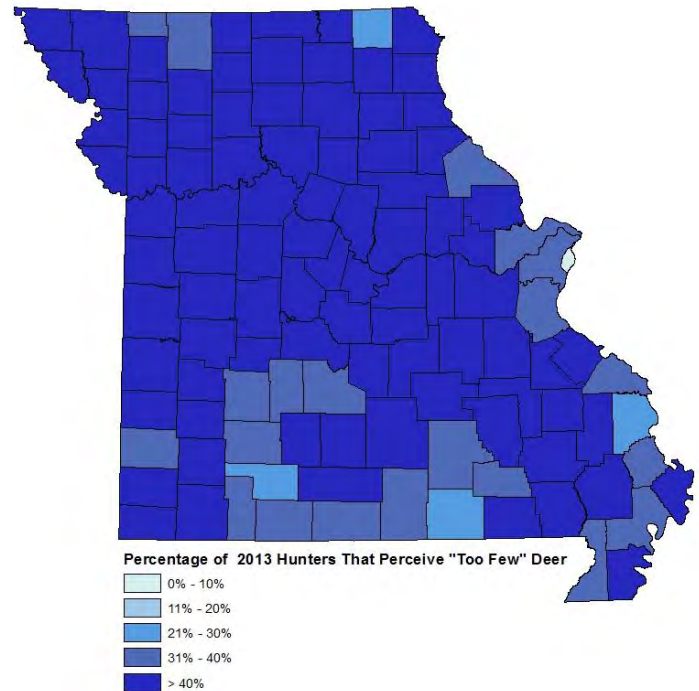
**Figure 7.** 2014 antlered buck harvest per square mile by county.

## Deer Hunter Data

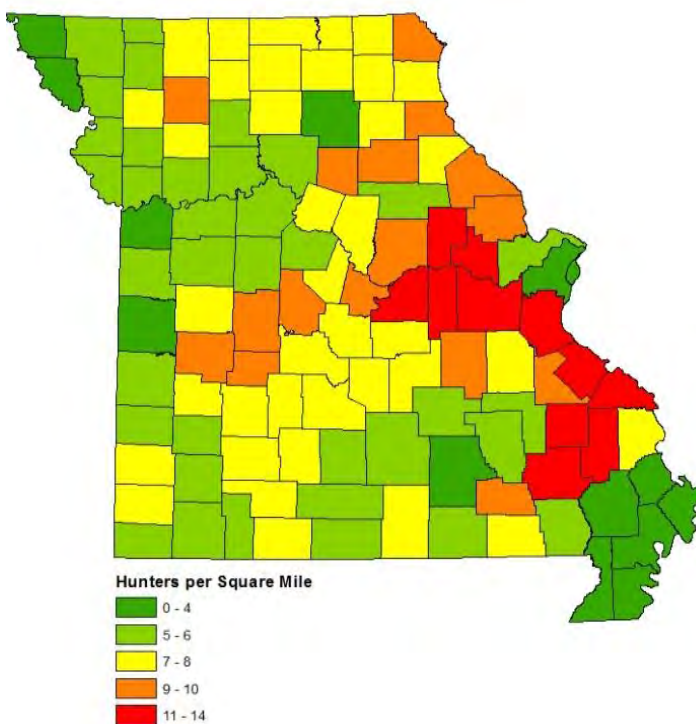




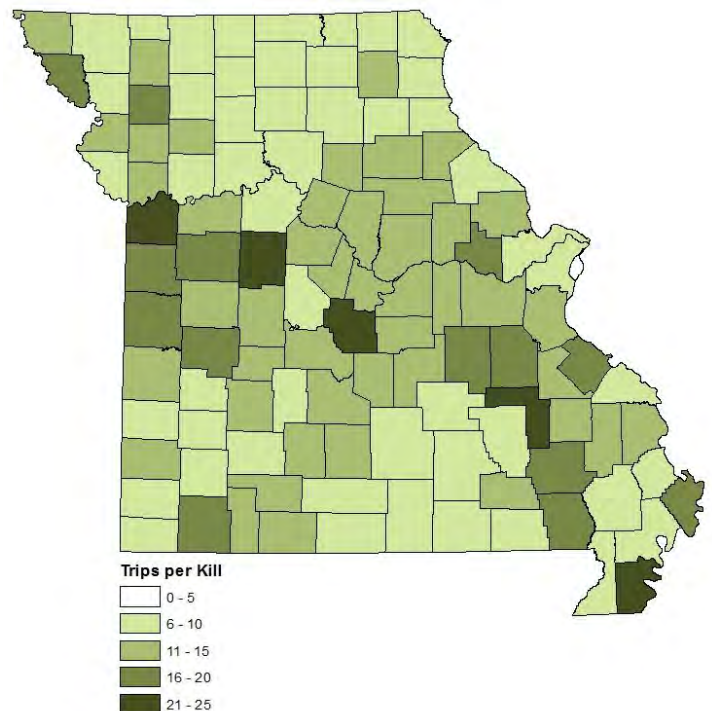
**Figure 8.** Estimated percentage of production landowners surveyed after the 2013-14 deer season that perceive there are too many deer.



**Figure 9.** Estimated percentage of hunters surveyed after the 2013-14 deer season that perceive there are too few deer.



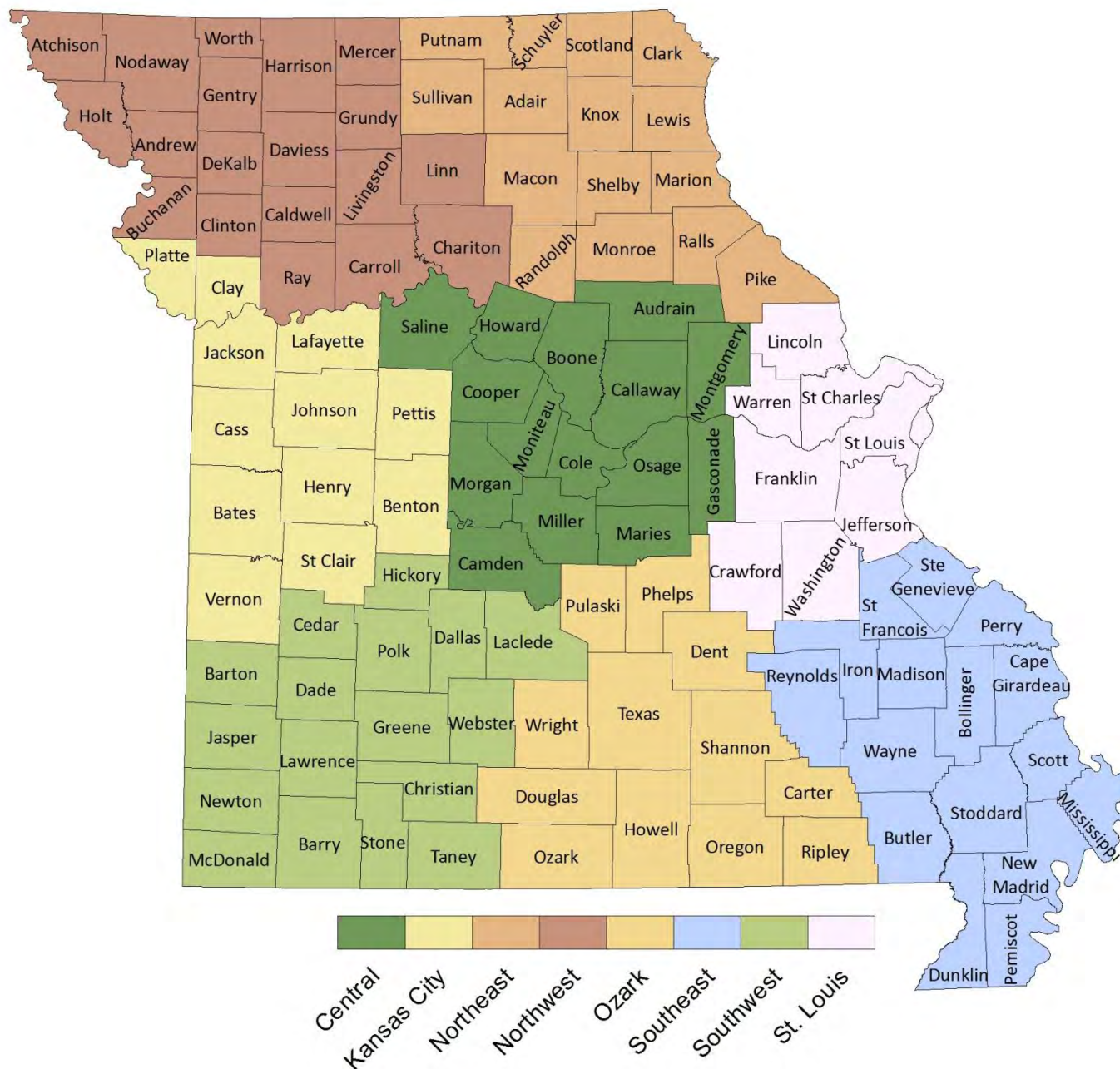
**Figure 10.** Estimated hunter density by county in 2013. However, it is important to consider the amount of forested land within each county, as that can influence hunter density on land suitable for hunting.



**Figure 11.** Estimated number of trips to harvest a deer by county in 2013. Generally, it took more trips to harvest a deer in central and eastern Ozark counties.

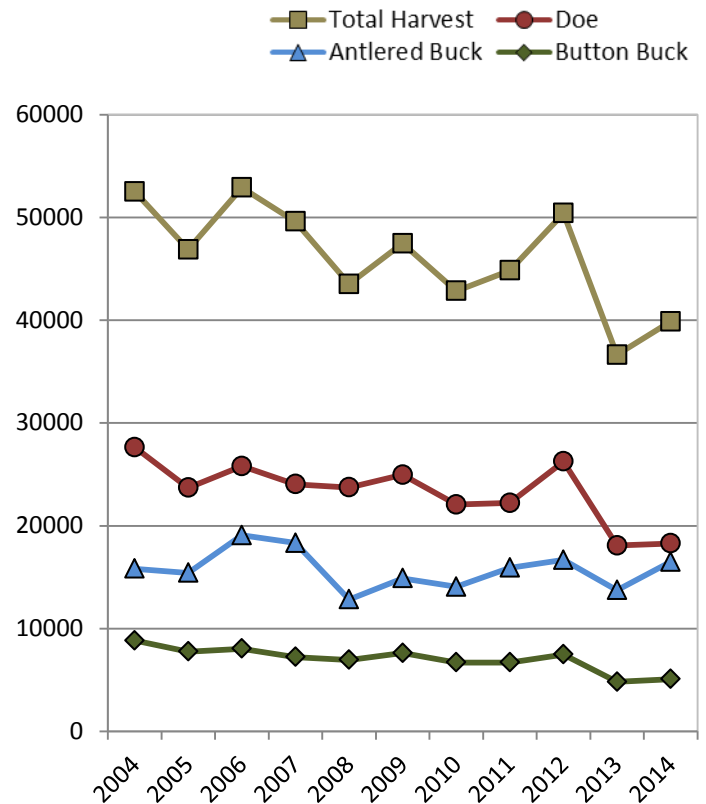
## Regional Deer Populations

Statewide deer population trends are important; however, regional deer population trends are more informative to most landowners and hunters. This smaller scale makes deer population trends apparent and the factors influencing populations more easily identified. Although, regional information is more indicative of population trends, it is important to acknowledge that deer populations can vary considerably within a region, and even within a county. Regional and local diversity in deer numbers is a result of differences in land cover and use, harvest regulations, hunter goals and density, and hemorrhagic disease events to name a few. Therefore, regional information should be considered as a starting point when evaluating deer populations within a localized area.



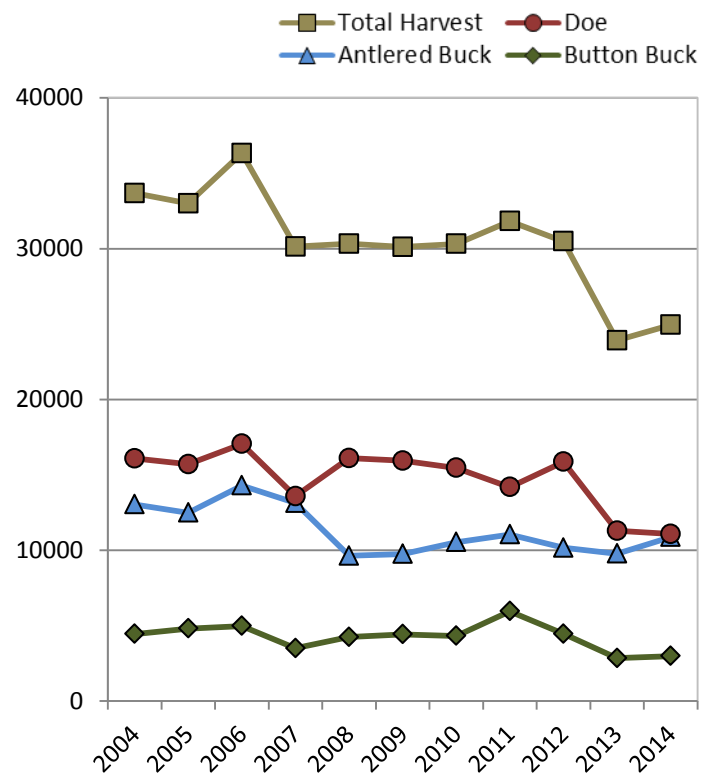
**Central Region (Audrain, Boone, Callaway, Camden, Cole, Cooper, Gasconade, Howard, Maries, Miller, Moniteau, Montgomery, Morgan, Osage, Saline)**

The deer population within the Central Region is diverse due to habitat differences and severe hemorrhagic disease events in the past five years, but generally, all counties have experienced declines. Although harvest increased in the majority of the counties compared to 2013, the region's overall harvest was 12% lower than the 10-year average. Audrain, Boone, Camden, Howard, and Morgan counties have had the largest decrease in deer harvest compared to the 10-year average of 21-26%. Firearms antlerless permit availability was reduced in 2014 for most of this region to gradually allow populations to stabilize and/or grow to desired population levels. Results of the 2013 surveys estimated that 41-67% of hunters felt there were "too few" deer, while 7-28% of production landowners perceived there were "too many" deer in these counties. Surveys results support that deer populations are below desired levels in many areas. Additionally, chronic wasting disease (CWD) was detected in Cole County in 2015. Therefore, in Boone, Callaway, Cole, Cooper, Miller, Moniteau, Morgan, and Osage counties CWD sampling will increase, the antler point restriction will be removed, and two firearms antlerless permits will be allowed during the 2015-16 deer season to slow CWD spread and limit prevalence. Additional management actions will be considered for the 2016-17 deer season. See page 22 for more information regarding CWD.



**Kansas City Region (Bates, Benton, Cass, Clay, Henry, Jackson, Johnson, Lafayette, Pettis, Platte, St. Clair, Vernon)**

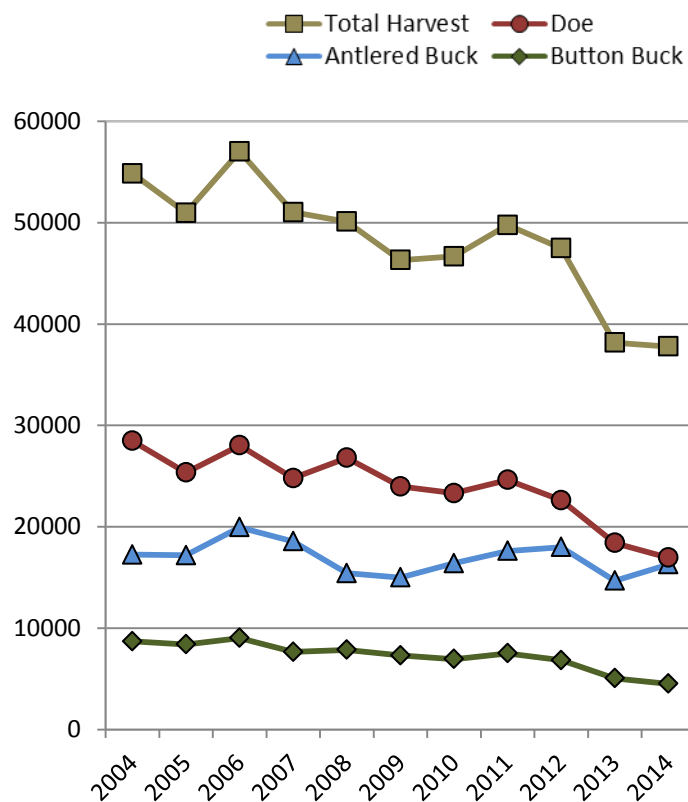
Harvest in the Kansas City Region in 2014 was down 17% compared to the 10-year average with all counties experiencing a decrease in harvest in 2014 when compared to the 10-year average. Benton, Clay, Henry, Jackson, Pettis, and Platte had harvest declines of 21% or greater. This decrease in harvest coupled with production landowner and hunter survey data coincide with population declines in the Kansas City Region as a result of long-term high doe harvest and the 2012 hemorrhagic disease outbreak. A reduction in firearms antlerless permit availability occurred in 2014 in the rural portions of this region in an effort to allow deer populations to stabilize and/or increase to desired population levels.



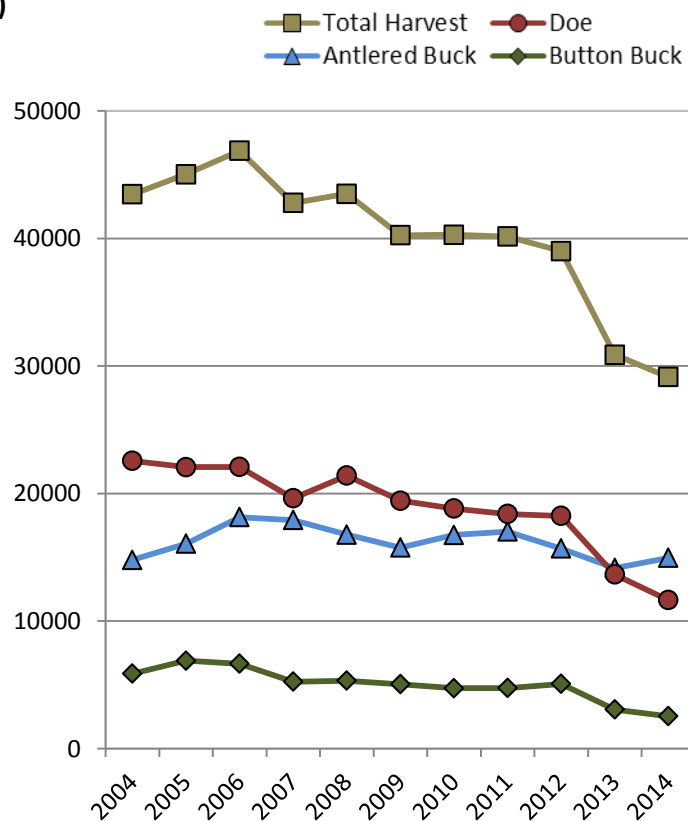


**Northeast Region (Adair, Clark, Knox, Lewis, Macon, Marion, Monroe, Pike, Putnam, Ralls, Randolph, Schuyler, Scotland, Shelby, Sullivan)**

The Northeast Region deer harvest decreased by only 1% from 2013, but was still a 21% decrease from the 10-year average, thus continuing the long-term decline. In some areas repeated hemorrhagic disease events in 2012 and 2013, coupled with liberal antlerless harvest opportunities resulted in deer populations decreasing to below socially acceptable levels. The greatest harvest declines occurred in Knox, Schuyler, and Shelby counties where the 2014 harvest decreased by 27% or more. In response to declining deer populations, firearm antlerless permits were reduced in 2014 to allow populations to stabilize and/or increase in to desired levels. Doe harvest decreased by 8% compared to 2013 and 25% compared to the 5-year average, and accounted for 45% of the total harvest. However, even within these counties there are areas of higher deer density that must be maintained with adequate doe harvest; therefore, hunters should evaluate local conditions and work with neighbors to determine and harvest the appropriate number of does to meet population goals. In addition to the CWD-positives in Macon and Linn counties, CWD was detected in Adair County in 2014. Therefore, the CWD Management Zone will expand for the 2015-16 season to apply management actions and regulations to slow disease spread and limit prevalence. See page 22 for more information regarding CWD.

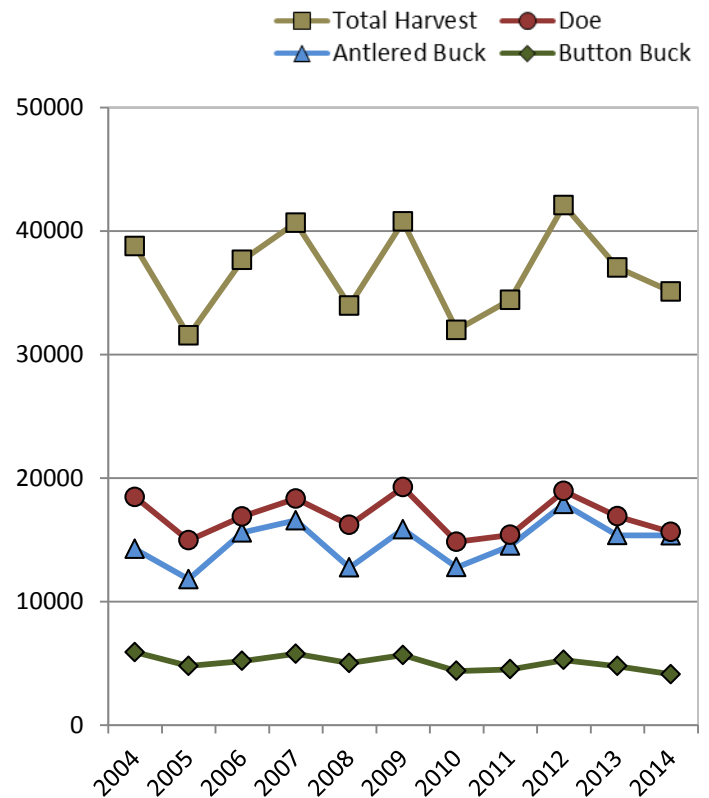

**Northwest Region (Andrew, Atchison, Buchanan, Caldwell, Carroll, Chariton, Clinton, Daviess, DeKalb, Gentry, Grundy, Harrison, Holt, Linn, Livingston, Mercer, Nodaway, Ray, Worth)**

The Northwest Region continued to exhibit the greatest harvest decline compared to all other regions with harvest 27% lower than the 10-yr average and 6% lower than 2013. Lower deer populations are a result of previously liberal antlerless harvest opportunities and hemorrhagic disease outbreaks, coupled with some areas experiencing significant land use changes that have reduced the amount of deer habitat. The most significant population reductions have occurred in Atchison, Buchanan, Clinton, DeKalb, and Holt counties, where harvest was down 35- 45% compared to the 10-year average. Worth, Harrison, and Mercer counties continue to exhibit the most stable harvest trends compared to other northwest counties. In response to declining deer populations, firearm antlerless permits were reduced in 2014 to allow populations to stabilize and/or increase. Doe harvest decreased by 15% compared to 2013 and 34% compared to the 5-year average, thus accounting for only 40% of the total harvest, the lowest of all Missouri regions.

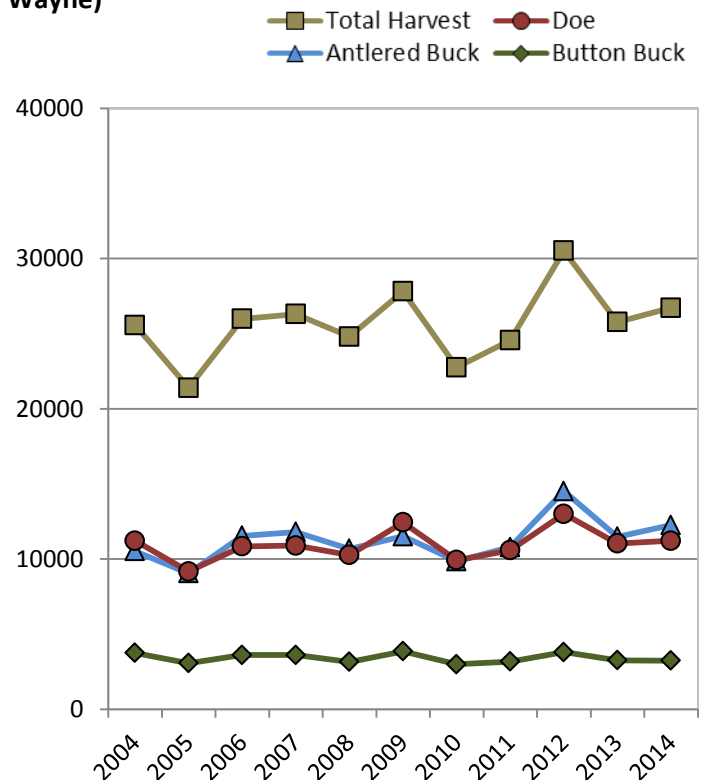


**Ozark Region (Carter, Dent, Douglas, Howell, Oregon, Ozark, Phelps, Pulaski, Ripley, Shannon, Texas, Wright)**

Average acorn production in 2014 resulted in moderate deer harvest for the region. In forest dominated areas like the Ozarks, acorns greatly influence deer movements, resulting in significant annual fluctuations in harvest that are not always reflections of actual population trends. For example, low acorn availability results in deer traveling frequently to food sources and often to fields, increasing deer sightings for hunters, and consequently increasing harvest. However, when acorns are abundant it can cause a decrease in deer harvest: therefore, it is important to evaluate several years of harvest to determine trends instead of a single year. Generally, the deer population in the Ozark Region has been stable to slowly increasing over the last decade. Compared to the 10-year average, Douglas and Pulaski counties had harvest increases of 5% and 10%, respectively. While Oregon, Ozark, and Phelps counties declined by 10% compared to the 10-year average. The number of deer hunters per square mile is fairly low compared to other Missouri regions. However, due to the forest dominated landscape, when hunters per square mile of forest is considered, the Ozark Region has the lowest hunter density in the state.

**Southeast Region (Bollinger, Butler, Cape Girardeau, Dunklin, Iron, Madison, Mississippi, New Madrid, Pemiscot, Perry, Reynolds, St. Francois, Ste. Genevieve, Scott, Stoddard, Wayne)**

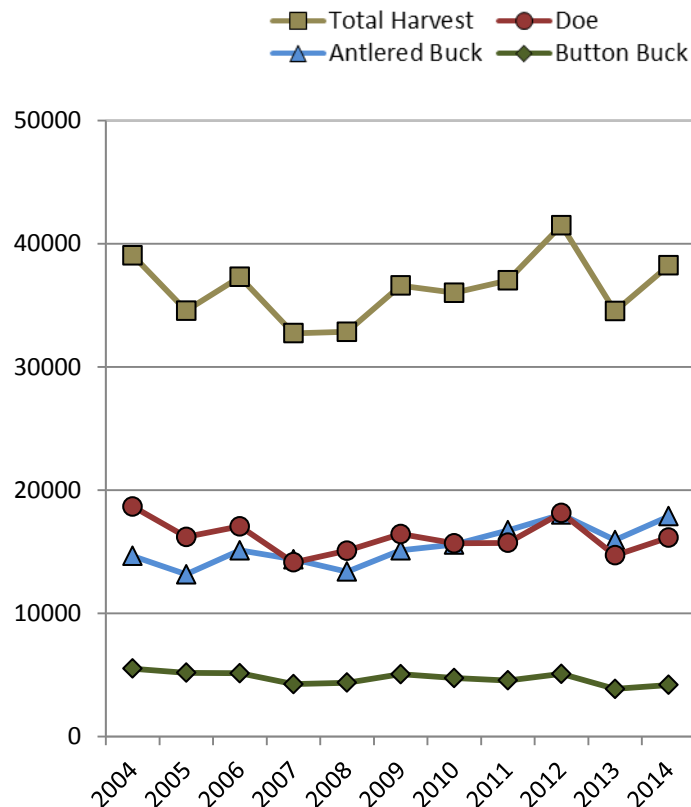
The Southeast Region's varying habitat, contrasting land use, and slowly increasing (yet varying) deer densities, coupled with contrasting stakeholder perceptions lead to a complicated deer management scenario. Deer harvest in the Southeast Region increased by 4% from 2013 and the 10-year average. Harvest in the "boot-heel" counties is reflective of a growing deer population and minimal influence of acorn production on harvest. Generally, harvest in other Southeast counties reflects a typical acorn crop and slowly increasing deer populations. The greatest increases in harvest compared to the 10-year average occurred in Dunklin and Cape Girardeau counties of 29% and 32%, respectively. Contrastingly, Ste. Genevieve County had the greatest harvest decline of 30% compared to the 10-year average, which is attributed to the antler point restriction increasing harvest pressure on does. Therefore, the antler point restriction has been removed beginning with the 2015-16 deer season in efforts to allow populations to recover. Southeast Region deer populations are being closely monitored and regulation changes will be considered if needed to maintain populations at desired levels.





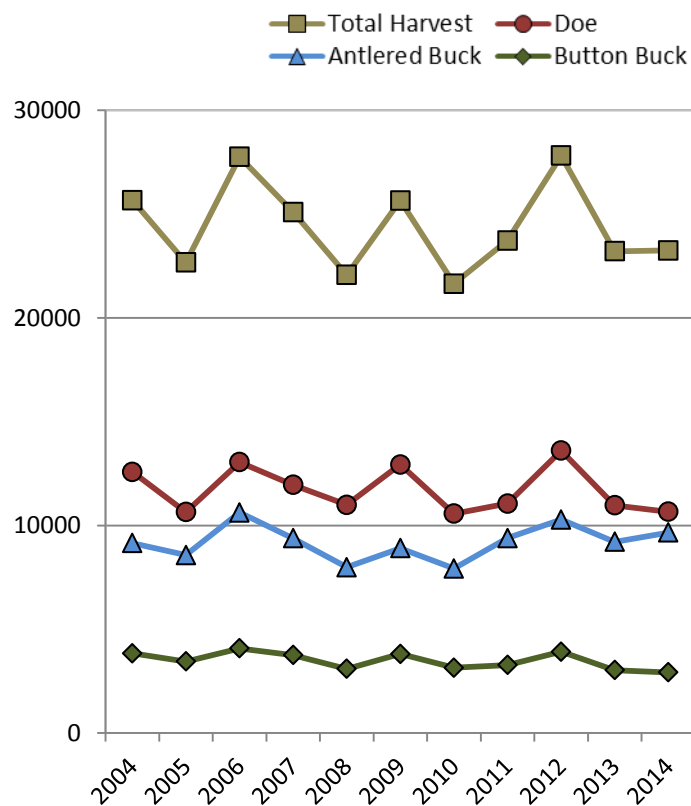
**Southwest Region (Barry, Barton, Cedar, Christian, Dade, Dallas, Greene, Hickory, Jasper, Laclede, Lawrence, McDonald, Newton, Polk, Stone, Taney, Webster)**

The 2014 deer harvest in the Southwest Region was a reflection of an average acorn production year and slowly growing deer populations. Deer harvest increased 11% from 2013 and 6% from the 10-year average. Counties with the greatest increase in harvest were Greene and Polk, when compared to the 10-year average they increased by 23% and 29%, respectively. The most substantial harvest declines occurred in Taney and Hickory counties with decreased of 11% and 13% compared to the 10-year average, respectively. The Southwest Region includes urban areas and varying habitat, therefore, it is important to acknowledge local conditions when determining the appropriate antlerless harvest in accordance with population goals. As deer populations in the Southwest Region continue to slowly increase, liberalization of antlerless harvest will be considered.



**St. Louis Region (Crawford, Franklin, Jefferson, Lincoln, St. Charles, St. Louis, Warren, Washington)**

The 2014 deer harvest in the St. Louis Region was virtually unchanged from the 2013 season, but did decrease 4% compared to the 10-year average. Franklin County harvest increased 10%, making it the only county with a harvest greater than the 10-year average. In St. Louis, Lincoln, and St. Charles counties, harvest was 11%, 12%, and 13% lower than the 10-year average, respectively. Urban areas, such as St. Louis and surrounding communities, often pose complications for effective deer management as a result of limited access and restrictions on hunting methods due to local ordinances, safety, and contrasting public perspectives. Therefore, archery methods, doe harvest, and public education continue to be critical in urban deer management and population control.



## County Deer Populations & Trends

The Deer Program annually evaluates a variety of data including deer population information, hunter and landowner surveys, and public input to assess county-specific deer populations. Collectively, this information serves as the foundation for regulation development.

There are two main forms of deer population data including harvest information and population indices. Harvest data includes the total number of deer harvested per county, but also the composition of that harvest (antlered buck, button buck, and doe). Population data includes bowhunter observation indices and population simulations that incorporate harvest numbers, age-at-harvest data, and estimated survival and reproduction rates.

Social data is critical when assessing the deer population in relation to public acceptance levels. Statewide, we send out surveys to 9,000 production landowners to assess perceptions and attitudes toward deer populations and regulations. Additionally, we survey 35,000 archery hunters and 35,000 firearm hunters, which allows us to estimate hunter effort, hunter density, and opinions concerning deer populations and regulations. The information depicted within the figures on page 8 are a result of surveys conducted in 2014. We also incorporate public comments received throughout the year via web comments, letters, calls, social media, public meetings (including open houses), emails, and any other feedback.

The Deer Program annually reviews all this information on a county-by-county basis to classify the deer population status and trend (See Figure 12 & 13). When classifying the status of the deer population, we generally evaluate it in the context of acceptable levels of the public (cultural carrying capacity). While biological carrying capacity, or the habitat's limitations on the number of deer that can be supported, is included within our assessment, generally cultural carrying capacity will be met first. This is because production landowners, motorists, and other stakeholders will often not tolerate deer population levels at biological carrying capacity. The Deer Program also evaluates the population growth trend for each county, as this indicates the direction that the population is headed.

It is critical to acknowledge that deer populations vary within a state, region, and even a county due to variation in habitat, harvest regulations, local hunter goals and practices, hunter density, and disease outbreaks like hemorrhagic disease. Therefore, these assessments are not applicable to every local situation, but are a general representation of the current status and population trend information for each respective county.

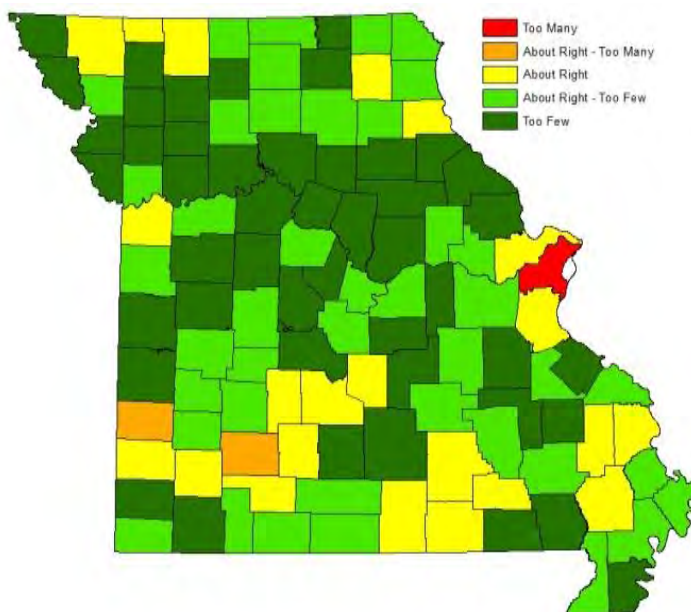


Figure 12. 2014 assessment of county-specific deer population status in relation to biologically and socially acceptable levels.

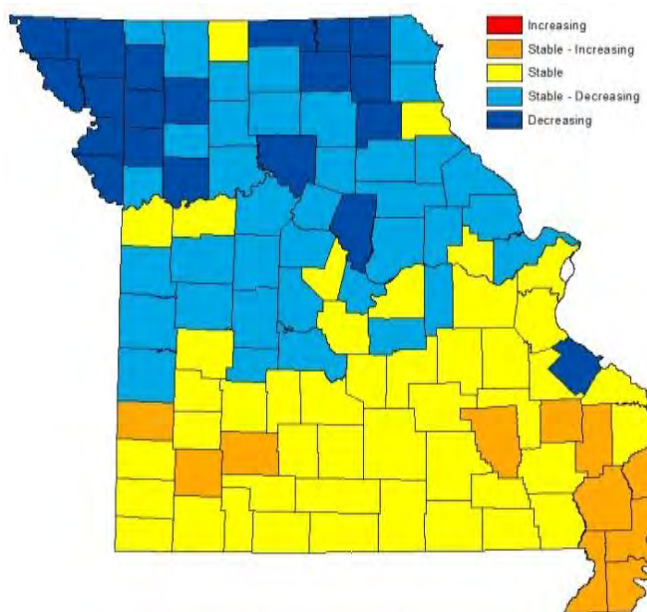


Figure 13. 2014 assessment of county-specific deer population trends.



Table 4: Archery and Firearms Harvest Totals for the 2014-15 Missouri Deer Season.

County	Archery				Firearms				Totals			
	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Adair	241	51	282	574	1020	316	1171	2507	1261	367	1453	3081
Andrew	70	16	79	165	512	81	362	955	582	97	441	1120
Atchison	100	11	71	182	390	44	232	666	490	55	303	848
Audrain	118	43	117	278	586	211	611	1408	704	254	728	1686
Barry	200	47	165	412	789	168	656	1613	989	215	821	2025
Barton	159	34	191	384	743	175	714	1632	902	209	905	2016
Bates	132	23	141	296	694	172	598	1464	826	195	739	1760
Benton	264	59	275	598	1242	380	1334	2956	1506	439	1609	3554
Bollinger	228	93	345	666	1296	340	1094	2730	1524	433	1439	3396
Boone	267	67	281	615	1007	256	1007	2270	1274	323	1288	2885
Buchanan	62	6	39	107	288	58	276	622	350	64	315	729
Butler	232	57	201	490	707	165	618	1490	939	222	819	1980
Caldwell	82	12	71	165	580	97	463	1140	662	109	534	1305
Callaway	314	114	379	807	1696	478	1703	3877	2010	592	2082	4684
Camden	279	89	352	720	937	320	1110	2367	1216	409	1462	3087
Cape Girardeau	171	59	252	482	1060	237	963	2260	1231	296	1215	2742
Carroll	132	24	128	284	877	145	643	1665	1009	169	771	1949
Carter	208	71	235	514	627	177	557	1361	835	248	792	1875
Cass	156	28	167	351	690	164	554	1408	846	192	721	1759
Cedar	169	23	201	393	838	273	912	2023	1007	296	1113	2416
Chariton	138	16	100	254	857	180	676	1713	995	196	776	1967
Christian	209	43	189	441	654	159	517	1330	863	202	706	1771
Clark	211	54	222	487	729	254	945	1928	940	308	1167	2415
Clay	183	31	189	403	293	69	265	627	476	100	454	1030
Clinton	60	15	56	131	335	72	274	681	395	87	330	812
Cole	95	28	126	249	484	199	658	1341	579	227	784	1590
Cooper	144	28	167	339	780	213	824	1817	924	241	991	2156
Crawford	212	68	265	545	1237	312	1118	2667	1449	380	1383	3212
Dade	108	23	118	249	643	136	448	1227	751	159	566	1476
Dallas	272	54	262	588	1069	283	1146	2498	1341	337	1408	3086
Daviess	138	19	143	300	770	172	622	1564	908	191	765	1864
Dekalb	55	10	47	112	421	102	323	846	476	112	370	958



Table 4: Archery and Firearms Harvest Totals for the 2014-15 Missouri Deer Season.

County	Archery				Firearms				Totals			
	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Dent	148	49	212	409	1095	316	1075	2486	1243	365	1287	2895
Douglas	197	44	196	437	1108	232	850	2190	1305	276	1046	2627
Dunklin	47	11	46	104	180	44	130	354	227	55	176	458
Franklin	348	124	509	981	1708	532	1874	4114	2056	656	2383	5095
Gasconade	211	60	268	539	1243	369	1333	2945	1454	429	1601	3484
Gentry	121	19	65	205	661	106	464	1231	782	125	529	1436
Greene	308	71	335	714	810	226	872	1908	1118	297	1207	2622
Grundy	100	18	111	229	597	118	537	1252	697	136	648	1481
Harrison	297	24	236	557	1173	188	808	2169	1470	212	1044	2726
Henry	152	42	215	409	952	289	977	2218	1104	331	1192	2627
Hickory	153	51	215	419	838	303	937	2078	991	354	1152	2497
Holt	80	3	78	161	419	59	264	742	499	62	342	903
Howard	136	26	160	322	860	166	831	1857	996	192	991	2179
Howell	310	75	336	721	1694	485	1875	4054	2004	560	2211	4775
Iron	86	22	56	164	477	108	291	876	563	130	347	1040
Jackson	321	86	340	747	360	64	328	752	681	150	668	1499
Jasper	268	33	260	561	936	182	760	1878	1204	215	1020	2439
Jefferson	329	144	572	1045	981	375	1223	2579	1310	519	1795	3624
Johnson	152	37	153	342	801	235	762	1798	953	272	915	2140
Knox	207	43	194	444	786	279	862	1927	993	322	1056	2371
Laclede	276	80	306	662	1342	376	1141	2859	1618	456	1447	3521
Lafayette	64	15	71	150	454	102	484	1040	518	117	555	1190
Lawrence	140	42	180	362	628	151	548	1327	768	193	728	1689
Lewis	133	40	155	328	691	268	847	1806	824	308	1002	2134
Lincoln	224	73	273	570	1124	324	1294	2742	1348	397	1567	3312
Linn	249	42	253	544	1184	250	970	2404	1433	292	1223	2948
Livingston	134	23	133	290	686	105	552	1343	820	128	685	1633
Macon	314	63	283	660	1539	391	1448	3378	1853	454	1731	4038
Madison	142	47	176	365	726	147	496	1369	868	194	672	1734
Maries	152	37	178	367	731	269	816	1816	883	306	994	2183
Marion	150	43	175	368	634	225	775	1634	784	268	950	2002
McDonald	158	23	174	355	757	104	551	1412	915	127	725	1767



Table 4: Archery and Firearms Harvest Totals for the 2014-15 Missouri Deer Season.

County	Archery				Firearms				Totals			
	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
<b>Mercer</b>	248	39	220	507	823	151	665	1639	1071	190	885	2146
<b>Miller</b>	173	54	210	437	835	307	1024	2166	1008	361	1234	2603
<b>Mississippi</b>	25	4	25	54	172	10	74	256	197	14	99	310
<b>Moniteau</b>	61	22	85	168	505	182	613	1300	566	204	698	1468
<b>Monroe</b>	179	44	179	402	959	299	932	2190	1138	343	1111	2592
<b>Montgomery</b>	174	68	191	433	1084	336	1073	2493	1258	404	1264	2926
<b>Morgan</b>	209	53	257	519	935	337	1163	2435	1144	390	1420	2954
<b>New Madrid</b>	30	8	32	70	235	11	90	336	265	19	122	406
<b>Newton</b>	277	42	223	542	920	195	675	1790	1197	237	898	2332
<b>Nodaway</b>	198	22	122	342	867	115	637	1619	1065	137	759	1961
<b>Oregon</b>	286	73	331	690	1204	392	1577	3173	1490	465	1908	3863
<b>Osage</b>	257	83	355	695	1396	448	1611	3455	1653	531	1966	4150
<b>Ozark</b>	186	40	165	391	1077	214	864	2155	1263	254	1029	2546
<b>Pemiscot</b>	21	4	17	42	90	8	39	137	111	12	56	179
<b>Perry</b>	123	38	185	346	1005	264	1035	2304	1128	302	1220	2650
<b>Pettis</b>	115	31	156	302	732	199	775	1706	847	230	931	2008
<b>Phelps</b>	153	55	250	458	790	255	924	1969	943	310	1174	2427
<b>Pike</b>	219	66	301	586	1273	391	1363	3027	1492	457	1664	3613
<b>Platte</b>	184	30	199	413	349	57	287	693	533	87	486	1106
<b>Polk</b>	219	47	236	502	1150	258	838	2246	1369	305	1074	2748
<b>Pulaski</b>	188	52	228	468	674	203	701	1578	862	255	929	2046
<b>Putnam</b>	286	29	247	562	944	171	670	1785	1230	200	917	2347
<b>Ralls</b>	150	45	172	367	743	244	827	1814	893	289	999	2181
<b>Randolph</b>	154	34	160	348	861	200	806	1867	1015	234	966	2215
<b>Ray</b>	82	18	92	192	624	95	485	1204	706	113	577	1396
<b>Reynolds</b>	119	36	106	261	732	187	546	1465	851	223	652	1726
<b>Ripley</b>	220	78	300	598	1032	337	1195	2564	1252	415	1495	3162
<b>Saint Charles</b>	234	52	250	536	669	142	611	1422	903	194	861	1958
<b>Saint Clair</b>	195	77	280	552	1193	428	1332	2953	1388	505	1612	3505
<b>Saint Francois</b>	152	55	170	377	635	198	588	1421	787	253	758	1798
<b>Saint Louis</b>	348	137	561	1046	288	54	275	617	636	191	836	1663
<b>Sainte Genevieve</b>	106	34	143	283	654	219	755	1628	760	253	898	1911



Table 4: Archery and Firearms Harvest Totals for the 2014-15 Missouri Deer Season.

County	Archery				Firearms				Totals			
	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total	Antlered Buck	Button Buck	Doe	Total
Saline	122	29	132	283	704	196	657	1557	826	225	789	1840
Schuyler	109	24	124	257	429	142	488	1059	538	166	612	1316
Scotland	234	49	247	530	791	270	906	1967	1025	319	1153	2497
Scott	48	11	60	119	272	45	226	543	320	56	286	662
Shannon	186	55	199	440	837	195	950	1982	1023	250	1149	2422
Shelby	198	40	179	417	814	217	824	1855	1012	257	1003	2272
Stoddard	227	95	351	673	607	173	610	1390	834	268	961	2063
Stone	148	36	167	351	554	112	416	1082	702	148	583	1433
Sullivan	251	24	240	515	1049	210	932	2191	1300	234	1172	2706
Taney	176	50	211	437	775	142	626	1543	951	192	837	1980
Texas	272	53	297	622	1789	406	1440	3635	2061	459	1737	4257
Vernon	208	63	237	508	993	303	965	2261	1201	366	1202	2769
Warren	163	55	232	450	871	237	799	1907	1034	292	1031	2357
Washington	120	54	129	303	803	241	674	1718	923	295	803	2021
Wayne	320	122	383	825	1338	387	1117	2842	1658	509	1500	3667
Webster	225	48	238	511	975	210	722	1907	1200	258	960	2418
Worth	128	10	79	217	416	57	267	740	544	67	346	957
Wright	173	42	175	390	900	212	697	1809	1073	254	872	2199
Central	2712	801	3258	6771	13783	4287	15034	33104	16495	5088	18292	39875
Kansas City	2126	522	2423	5071	8753	2462	8661	19876	10879	2984	11084	24947
Northeast	3036	649	3160	6845	13262	3877	13796	30935	16298	4526	16956	37780
Northwest	2474	347	2123	4944	12480	2195	9520	24195	14954	2542	11643	29139
Ozark	2527	687	2924	6138	12827	3424	12705	28956	15354	4111	15629	35094
Southeast	2077	696	2548	5321	10186	2543	8672	21401	12263	3239	11220	26722
Southwest	3465	747	3671	7883	14421	3453	12479	30353	17886	4200	16150	38236
St. Louis	1978	707	2791	5476	7681	2217	7868	17766	9659	2924	10659	23242
GRAND TOTAL	20395	5156	22898	48449	93393	24458	88734	206585	113788	29614	111633	255035

## Adjusting Management to Changing Deer & Hunter Populations

In the early 2000's deer populations were rapidly growing in parts of Missouri and regulations were adjusted to control deer numbers. Those regulations included increasing antlerless permits, extending the firearms season, providing an antlerless portion, and providing additional archery buck permits. Now that those regulations coupled with hemorrhagic disease outbreaks have stabilized and reduced deer populations, regulations changes are being considered for the 2016-17 deer season that are reflective of current deer populations, while promoting hunter recruitment and retention so that deer hunting continues to be a long-standing tradition in the Show Me State. Subsequently, it is important to understand how harvest regulations are used as "tools" to manipulate deer populations in order to maintain at desired levels that are socially acceptable to all stakeholders and below biological carrying capacity.

### Changes to Antlerless Permit Allocation

In 2014, firearm antlerless permit allocation was reduced in many counties due to decreasing deer populations. Firearms antlerless harvest is the driving factor of population growth with 78% of all antlerless harvest occurring within the firearms season, and nearly 60% in the November portion alone. Additionally, over 60% of all deer taken on antlerless permits are taken on firearm antlerless permits (not including landowner or youth permits). Therefore, manipulating the number of firearms antlerless permits is an excellent tool to influence antlerless harvest, thus affecting population trends. While only a small portion of hunters harvest more than one antlerless deer annually, limiting the number of firearms antlerless permits per hunter will have gradual population impacts over the next few years and can have much quicker local impacts. However, it is important to view deer management not with annual goals, but instead long-term goals, because dramatic shifts in harvest result in more frequent and complicated regulation changes.

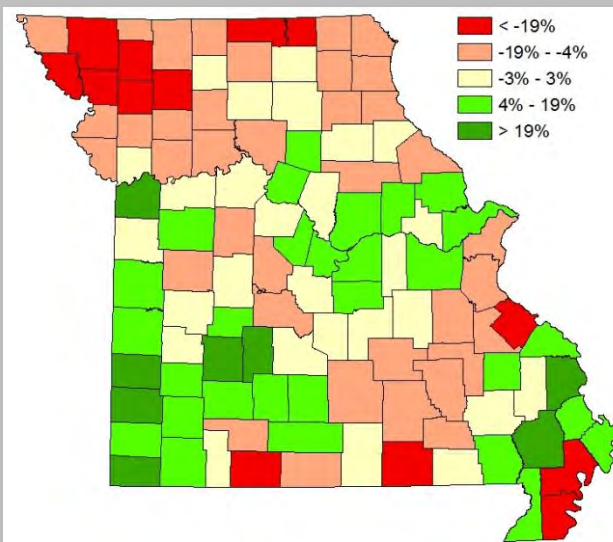
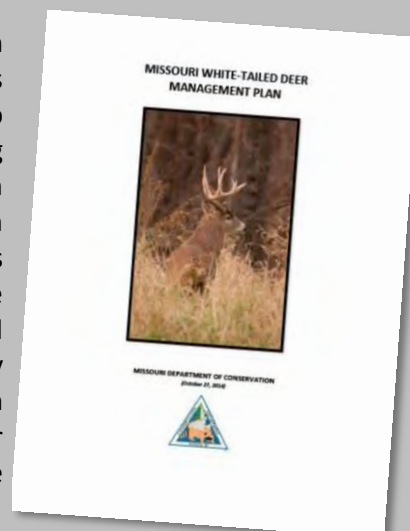


Figure 15. Percent change in 2014 doe harvest compared to 2013. Decreased doe harvest in northern counties should allow areas of lower deer density to stabilize and some to increase in the next few years.

### White-tailed Deer Management Plan Finalized

The White-tailed Deer Management Plan has been finalized. The Plan establishes long-term goals, objectives, and strategies for managing Missouri's deer herd. Fourteen open house meetings were held in the summer of 2014 to engage stakeholders and gain their input regarding deer management, including hunting season structure, deer population levels and trends, and feedback on the deer management plan. Those meetings combined with online information generated approximately 4,000 comments. Social and biological data was compiled and used to develop potential regulations recommendations for the 2016-2017 deer hunting season, representing an initial step toward implementing the goals and objectives of the management plan. In February and March of 2015, the Department held eight additional informational open houses to gather public input on regulations changes currently under consideration. This feedback will be incorporated as regulation proposals are developed.





### Age Distribution of Missouri Deer Hunters



**Hunter recruitment and retention are important to keep the hunting tradition vibrant in Missouri, and maintain our ability to manage deer populations.**

Hunting goals and methods can often change as hunters age. Therefore, it is important to monitor the age distribution of deer hunters as it influences the future ability to manage deer populations. On average the older segment of the hunting population harvest fewer deer than younger hunters. Therefore, as the “Baby Boomer” generation continues to age, their harvest may collectively decline. The “Baby Boomer” generation composes approximately a third of our deer hunters in Missouri, thus influences our ability to manage deer populations effectively. If we do not replace aging hunters the loss of participation and harvest will influence our ability to manage future deer populations. Subsequently hunter recruitment and retention is critical to ensure there are enough deer hunters to manage deer populations effectively throughout the state. Additionally, deer hunting is important to continue the long tradition of hunting and conservation in Missouri.

The Department is considering regulation changes for the 2016-17 deer season to positively influence hunter recruitment and retention. One consideration is to move the Late Youth Firearms Portion to directly after Thanksgiving and extending it from 2 to 3 days. This change would provide more opportunity for youth during a time frame with generally better weather conditions which should increase participation. Another consideration is to allow crossbows during the Archery Season to allow more opportunity for hunters, especially younger and older hunters that cannot hunt with a vertical bow. Once hunters enter their 40's, archery

participation diverges from firearms deer hunter participation and appears that archery hunters begin to “drop out” of archery hunting. If, as suspected, physical limitations further the decline in participation of middle-aged archery hunters, allowing the use of crossbows would potentially extend participation for several years for those that retain a desire to hunt.

### Age Distribution of Missouri Deer Hunters in 2004 & 2013

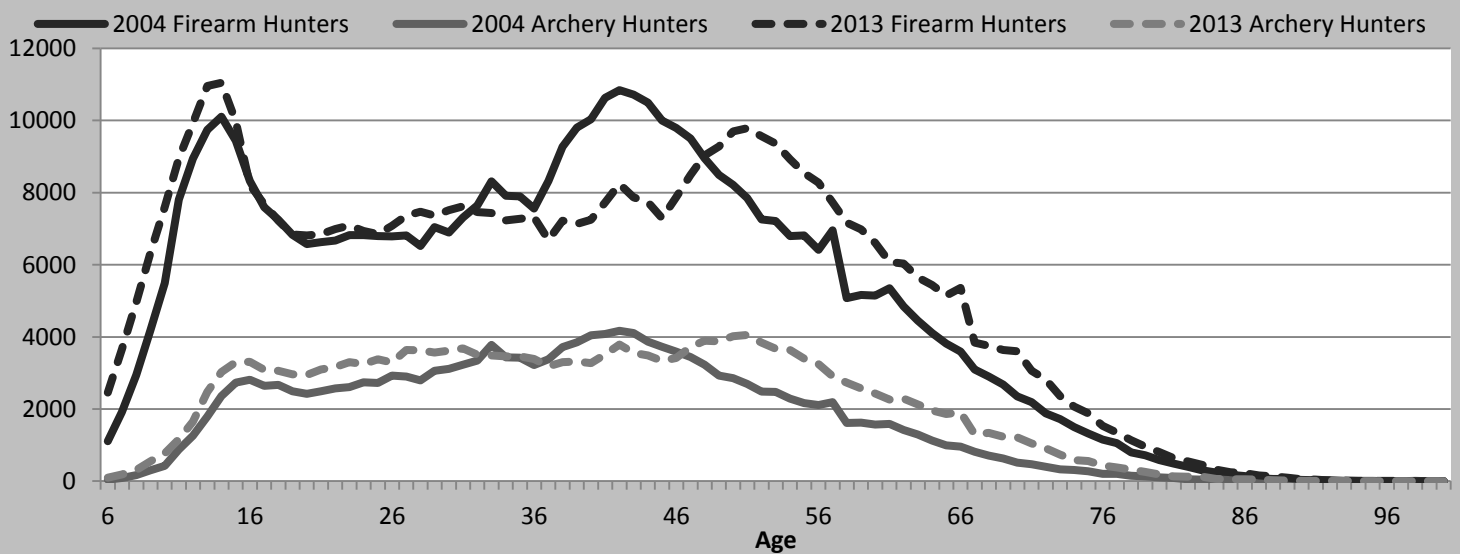


Figure 16. Age distribution of archery and firearm hunters in Missouri during 2004 & 2013 deer seasons.

## Deer Management Information

### Managing your Land for Deer

Landowners can enhance resources for deer on their property by implementing habitat management practices that increase the quality and quantity of cover and forage. While initiating practices may appear intimidating, Missouri Department of Conservation staff, including private land conservationists work with landowners to develop management plans according to the landowners' goals. MDC staff can guide and teach management techniques such as timber stand improvement, food plot development and invasive species control.

For information on how the MDC works with landowners to improve habitat, or to find a private lands conservationist near you, go online to [mdc.mo.gov](http://mdc.mo.gov).



A cooperative workshop in southeast Missouri where landowners and families gather to learn about wildlife and habitat management.



### Deer Cooperatives

Cooperatives, or coops, are not a new concept, as it is simply a group of landowners or hunters working together to improve the wildlife and habitat. In Missouri, coops focusing on deer management are becoming increasingly popular.

Deer can have home ranges over 1,000 acres, therefore, most local deer populations are influenced by several landowners and hunters. By working together, there is a greater chance of achieving shared deer management goals.

**Contact Emily Flinn, MDC Deer Biologist if you are interested in forming a cooperative or would like to learn more by calling (573) 815-7901 ext-3619 or emailing [emily.flinn@mdc.mo.gov](mailto:emily.flinn@mdc.mo.gov)**

### Deer Information for Hunters & Landowners

The University of Missouri (MU) Extension and Missouri Department of Conservation have developed a publication series devoted solely to deer management. This information is intended for landowners, hunters, and wildlife enthusiasts that want to learn more about deer and managing deer in Missouri.

There are seventeen science-based deer handouts that will guide landowners and hunters to better understanding and managing deer populations. Several publications explain how to obtain population information, such as sex ratio, density, fawn recruitment, and age structure. Topics also include habitat management and deer biology, including antler growth, ecology, and aging deer by jawbones.



These publications are free and available on MU Extension's website at <http://extension.missouri.edu/deer>



## Chronic Wasting Disease

Chronic wasting disease (CWD) belongs to a group of diseases known as transmissible spongiform encephalopathies (TSEs) which cause deterioration of the brain in cervids such as deer, elk, and moose. CWD is always fatal, but can take months or years before symptoms appear. These symptoms can include changes in behavior, extreme weight loss, excessive salivation, stumbling, and tremors. Infected cervids can spread CWD by contacting other cervids and via excrements (e.g., feces, urine, and saliva) in the environment. Additionally, CWD can spread geographically through the natural movements of infected cervids and the human-assisted movement of infected carcasses (e.g., hunter-harvested deer) or captive cervids. To determine if a cervid is CWD-positive, a laboratory test of the brain stem or lymph node tissue is required.

Current research indicates that CWD cannot spread to domestic livestock, such as sheep or cattle. The Center for Disease Control and Prevention (CDC) has found no evidence that CWD can infect people. While there is no scientific evidence that CWD is transmissible to humans or animals other than deer and cervids, public health officials do not recommend the consumption of the parts (i.e., brain, spinal cord, eyes, spleen, and lymph nodes) where prions are known to accumulate.

### CWD in Missouri: Spring 2015 Update

CWD was first detected in Missouri in 2010 at a captive big-game hunting preserve in Linn County. In January 2012, the first free-ranging CWD-positive deer were detected in Macon County. MDC implemented several management actions within a six-county CWD “Containment Zone” to limit the spread and prevalence of the disease, including: 1) The removal of the antler point restriction (APR) because it promoted an older age structure of bucks, which often have higher infection rates. The APR also protected yearling males, which disperse from their birth area for new territory, which is a significant means of spreading CWD across the landscape. 2) The placement of feed, minerals, and other consumable deer attractants was banned, as these materials artificially concentrate deer, thus increasing the likelihood of disease transmission. 3) In addition to statewide routine sampling that began in 2002, MDC increased efforts to sample hunter-harvested deer in the Containment Zone and implemented targeted culling in the Core Areas (see red outlined areas in the map above) to decrease the spread and prevalence. Additionally, post-season targeted efforts have proven more effective at removing CWD-positive deer from the landscape than regular hunter-harvest, with 65% of the CWD-positive deer detected in Missouri to date being removed after the close of annual deer seasons.

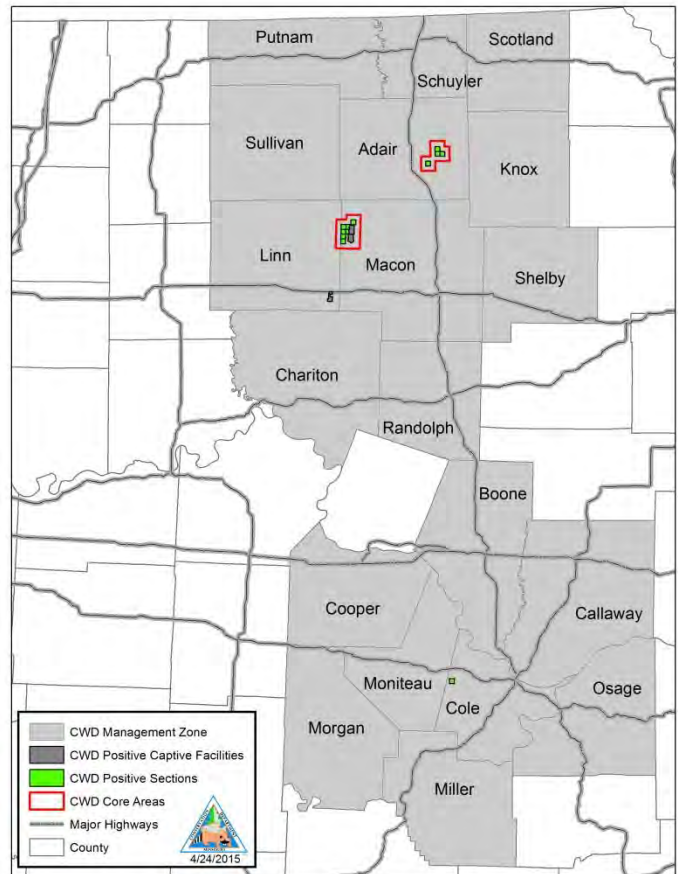


Figure 16. This map illustrates the distribution of detected CWD-positive deer, CWD Management Zones, and Core Areas as of June 2015.

In December of 2014 a CWD-positive deer was detected in Adair County, representing the first CWD detection outside the original CWD Core Area. Additionally, in March of 2015, a hunter-harvested deer from the 2014-15 deer season tested positive for CWD in Cole County marking the first time CWD was detected outside of the Containment Zone. As of June 2015, CWD has been detected in 26 free-ranging deer in Macon (19), Adair (6), and Cole (1) counties, and 11 captive deer in Linn (1) and Macon (10) counties. In response, the CWD Management Zones have been expanded (refer to shaded counties in the map above) and during the 2015-16 deer season will have increased CWD testing of hunter-harvested deer, removal of the antler point restriction, and allowance of two firearm antlerless permits per hunter within each county. Additional management actions will be considered for the 2016-17 deer season.

**For more information, contact the Wildlife Health Program at (573) 815-7900.**



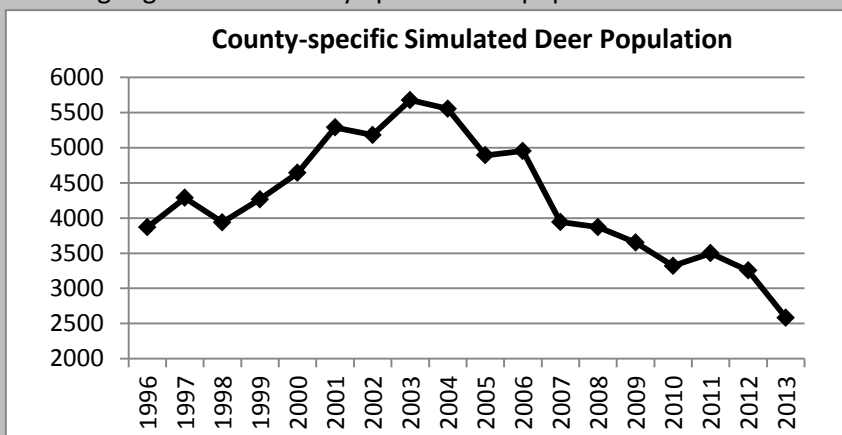
## Deer Program Research Projects

Research projects produce important information that is incorporated into management decisions on scales ranging from local to statewide levels, and are consequently essential to the Deer Program's ability to manage for a sustainable, healthy deer herd at desired population levels for all stakeholders. The following research projects will have broad and diverse application to deer management in Missouri.

### Investigating a New Method for Modeling Deer Populations in Missouri

In collaboration with the University of Missouri and the University of Washington, MDC is investigating a new method of modeling deer populations in Missouri called Statistical Population Reconstruction (SPR). This is an exciting endeavor for the MDC Deer Program because population models are an important component when assessing deer populations, considering regulation changes, and determining the impacts of potential regulations changes. This new method provides several improvements over current population models that will increase model accuracy, strengthening the foundation for monitoring regional and county-specific deer populations.

This modeling approach uses a variety of data that MDC currently collects including age at harvest information, hunter effort, harvest data, and some additional information that will be collected in future deer research projects. Missouri will be the first state to implement SPR on a statewide basis for any animal, but specifically for deer and turkey.



### Modeling Chronic Wasting Disease Dynamics and Impacts on White-tailed Deer in Missouri

In collaboration with the University of Missouri, MDC has implemented a research project to model chronic wasting disease (CWD) distribution and potential impacts on Missouri's deer population. We plan to model the distribution and prevalence of CWD currently and in the future given various scenarios. This will allow us to model potential impacts of CWD on the deer herd, including survival and abundance. Additionally this information may provide insight on management adjustments that could limit CWD distribution and prevalence.



CWD is a fatal neurological disease that poses a serious long-term threat to the health of the free-ranging deer population.

In addition to the application to the CWD Management Zones it will allow MDC to evaluate the impact of various management practices on CWD prevalence and distribution. Also, the study will provide the ability to compare various monitoring strategies, thus increase our ability to detect CWD early so that management efforts can be effective, while ensuring the efficient use of resources.

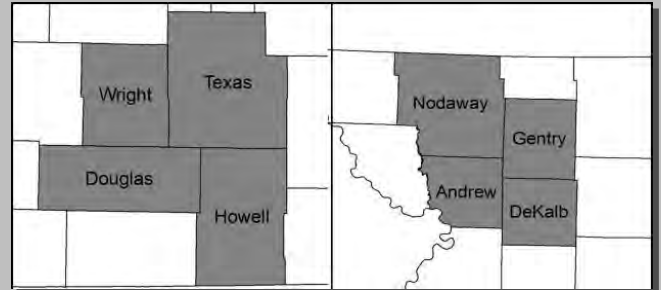
Refer to page 22 for more information on CWD.

## Survival, Recruitment, and Movement Patterns of White-tailed Deer in Missouri

The Missouri Department of Conservation and the University of Missouri have initiated a 5-year study to evaluate deer survival, reproduction, and movement patterns within two contrasting habitats. The findings will influence deer management in Missouri for years to come and will be applied to deer population models, disease management protocols, and localized deer management efforts.

During the past several decades, large-scale changes have occurred and the resulting impacts on survival, reproduction, and movements are unknown. These changes include shifts in habitat conditions, hunter goals, deer densities, predator populations, and harvest vulnerability. If historic estimates do not reflect current conditions, then the accuracy of the Department's population models and effectiveness of management efforts could be influenced.

There are study locations in both the Ozarks and Northwest portions of Missouri that represent contrasting compositions of public land, habitat (ex: forest, agriculture, pasture), and harvest regulations, which can impact deer survival and movement.



Trapping efforts began in January 2015 to capture, collar, and monitor deer of all age and sex classes within both study areas. The sample of collared deer will be replenished annually due to losses as a result of natural mortalities, hunter harvest, and deer maturing into older age classes. Adult deer are captured and collared from January - March by using traps and nets. Pregnant females will be given a transmitter that will alert researchers when births occur, allowing us to locate, capture, and collar fawns.



Research crews capturing and collaring an adult doe.



MDC Deer Biologist holding a captured and collared fawn.

Hunters are encouraged to NOT let the presence of a collar impact your decision to harvest a deer. It is critical for research purposes that collars do not bias hunter harvest decisions. Therefore, if you would normally harvest a deer that happens to be collared, do so and please contact the number listed on the tag/collar as soon as possible. Likewise, if you would normally not harvest that deer, then do not let the presence of a collar impact your decision.

Local landowners and hunters are vital to implementing this project, as the majority of the research activities are conducted on

private property. Landowners have been generous in allowing research crews to gain access to trap adult deer, locate fawns, and investigate mortalities. For questions or interest in participating, contact Deer Biologist Emily Flinn at [emily.flinn@mdc.mo.gov](mailto:emily.flinn@mdc.mo.gov) or 573-815-7901, ext. 3619. This project is being funded by hunters and sportsmen and women through financial assistance provided by Wildlife Restoration Funds.





Crew leader releasing a collared deer as part of research conducted in Northwest and Ozark regions to evaluate deer survival and movements.



# Missouri Department of Conservation